

REMARKS

This Amendment is in response to the Office Action of January 29, 2010 in which claims 1, 2 and 4-12 were rejected and claim 3 objected to.

The specification has been amended to insert the word --and-- at page 13 to correct an inadvertent omission. Support may be found in the box on the right hand side of Fig. 4 that starts out with the words "Measure and keep ...". Entry is requested.

Regarding the 35 USC 103 rejection, Applicants disagree and believe that the pending claims are not obvious over Admission combined with the cited prior art. The Examiner states that:

Admission discloses a mixer circuit comprising a down-conversion mixing component (fig.2, item 23) arranged for down-converting an input radio frequency signal (RF IN) and an active mixer load circuit connected to output terminals of said down-conversion mixing component (fig. 2, item 24).

The above estimation is contested. Figure 2, item 24 merely presents "a mixer load 24." There is nothing in the background section of the description to indicate that an active mixer load would be considered part of the prior art. On the contrary, the "active mixer load" feature is disclosed in the summary of the invention, for instance at page 6, lines 3-4 of the second full paragraph of the Summary section (corresponding to US 2008/0305759 paragraph [0020] on page 2). Challenges in adopting an active mixer load are further elaborated at page 7, last paragraph (see [0024] of US 2008/0305759). The Examiner further argued that:

Admission did not explicitly disclose active mixer load circuit to include mixer load and modulator arranged for modulating a flicker noise produced by said active mixer load away from the signal band of a signal output by said down-conversion mixing component. *Darabl* discloses this limitation (col.2, lines 26- col.3, lines 13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the above limitation in order to increase the receiver's voltage gain and to reduce or eliminate the flicker noise.

The applicant respectfully disagrees. First of all, as pointed out above, Admission did not actually admit an active mixer load connected to the mixer to be

part of the prior art, at least not one capable of being arranged for modulating a flicker noise away from the signal band of the mixer output. See page 15, third full paragraph corresponding to published paragraph [0062] on page 4 of US 2008/0305759. Second, even if an active mixer load was known, *Darabl* fails to disclose any active mixer load at all, much less with the claimed features. The figures of *Darabl* only show a “differential mixer output 138.” Regarding the “modulator arranged for modulating a flicker noise produced by said active mixer” feature, *Darabl* does not show such a feature.

Darabl states at col. 2, line 60 – col. 3, line 4:

The mixers further include at least one auxiliary current module that is coupled to provide a current to the second transconductance module during switching of at least a portion of the first transconductance module. Stated differently, the auxiliary current module provides a current that is sourced into the second transconductance module at or near a zero-crossing of the signal received by the first transconductance module. As such, the current that is sourced by the at least one auxiliary current module reduces or eliminates any flicker noise that would otherwise be produced by the first transconductance module at or near a zero-crossing.

Therefore, the solution by *Darabl* is an attempt to eliminate flicker noise caused by the “first transconductance module.” The first transconductance module is considered equivalent to the mixer core i.e. the transistors mixing an input signal 136 with a local oscillator signal 134 (see Fig. 4 of *Darabl*).

Darabl does not modulate flicker noise away from the signal band of a signal input much less flicker noise produced by an active mixer load. *Darabl* uses a signal crossing detector 143, which is arranged to inject an amount of additional DC bias current for the first transconductance module at or near a zero-crossing of a signal received by the second transconductance module. The flicker noise produced by a mixer load is not related to the flicker noise produced by the first transconductance module. Even if it were, the *Darabl* solution would be different. The whole purpose of the current injection disclosed by *Darabl* is to reduce I_1 and I_2 (see Fig. 5 and column 9, lines 33-35 of *Darabl*) during switching of the mixer MOSFET transistors so as to attack the problem directly, i.e., reduce mixer-generated flicker noise itself. This does not have anything to do with an active mixer load and modulator arranged

for modulating a flicker noise produced by said active mixer load away from a signal band of a signal output by a down-converted mixing component. *Darabl* could use the present invention along with his invention to both reduce flicker noise caused by his mixer and to modulate flicker noise caused by a load added according to the present invention.

Therefore, claim 1 is nonobvious over Admission combined with the *Darabl* reference. The same may be said for the other independent claims 6, 11 and 12 since they contain similar limitations as claim 1. Withdrawal of the obviousness rejection of the independent claims 1, 11 and 12 is requested. The indication of allowable subject matter in claim 3 is noted with appreciation but it is believed that in view of the above remarks, all of the other dependent claims 4-10 are patentable for at least the same reasons. Withdrawal of the obviousness rejection of claims 1 and 4-12 is requested.

The objections and rejections of the Office Action of January 29, 2010, having been obviated by amendment or shown to be inapplicable, withdrawal thereof is requested and passage of claims 1-12 to issue is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, reading "Francis J. Maguire", with a long horizontal flourish extending to the right.

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